

Preliminary results from photo-identification and satellite-tagging of false killer whales off the island of Kaua‘i in June 2012

Robin W. Baird, Cascadia Research Collective
August 5, 2012

On June 13 and 14, 2012, false killer whales were encountered off of Kaua‘i and Ni‘ihau during a field project being undertaken by Cascadia Research Collective. During the encounters on these two days, 29 individuals were photo-identified, biopsy samples were collected from 11 individuals, and satellite tag were deployed on three individuals (two of which were also biopsied).

Photo-identification results.

Of the 29 individuals identified, 20 were considered distinctive and 8 were considered slightly distinctive, and good or excellent quality photos were available for all 28. Photographs were compared between encounters and with a photo-identification catalog containing 224 identifications of distinctive and very distinctive individual false killer whales from three known populations, the main Hawaiian Islands insular, the Northwestern Hawaiian Islands (NWHI) insular, and the pelagic populations. While there were matches of two distinctive individuals between the two days, there were no matches to any other individuals in the catalog. Given the number of identified individuals compared to the catalog size for each population, this suggests the groups encountered were either from the NWHI insular or pelagic populations.

Satellite-tagging results.

Movement data were obtained from the three individuals over periods of 16, 22, and 42 days. During the period of overlap all three individuals remained in relatively close proximity, so data from the 42 day track (PcTag34) are primarily shown/discussed below. At this time data have been processed for 40 of the 42 days, although for the two days that have not been processed the tagged individual remained within the same area that it had been in before and after the two day period.

After tagging off of Kaua‘i, the tagged individuals circumnavigated Ni‘ihau and returned to the northwest side of the island of Kaua‘i, then traveled south and west past Ni‘ihau and into the northwestern Hawaiian Islands at the banks between Nihoa and Necker Islands. Once in the northwestern Hawaiian Islands the tagged individuals spent the majority of their time on the periphery of the banks surrounding Nihoa, Necker, French Frigate Shoals, and Gardner Pinnacles (Figure 1, Table 1). The range used by the tagged individual was generally similar to the two individuals from the NWHI population tagged in 2010 (Figure 2; Baird et al. 2011), although it does extend 130 km WNW of the individuals tagged in 2010, to Gardner Pinnacles. Depths used ranged from 17 to 4,631 m, with a median depth of 697 m, considerable shallower than the two animals tagged in 2010 (Figure 3; Table 1; Baird et al. 2011). A comparison of the known ranges of individuals from the MHI insular population and the NWHI population are shown in Figure 4, with a detail of overlap around Kaua‘i and Ni‘ihau shown in Figure 5.

Baird, R.W., G.S. Schorr, D.L. Webster, D.J. McSweeney, M.B. Hanson and R.D. Andrews. 2010. Movements and habitat use of satellite-tagged false killer whales around the main Hawaiian Islands. *Endangered Species Research* 10:107-121.

Baird, R.W., E.M. Oleson, J. Barlow, A.D. Ligon, A.M. Gorgone, and S.D. Mahaffy. 2011. Photo-identification and satellite tagging of false killer whales during HICEAS II: evidence of an island-associated population in the Papahānaumokuākea Marine National Monument. Document PSRG-2011-16 presented to the Pacific Scientific Review Group, Seattle, November 2011.

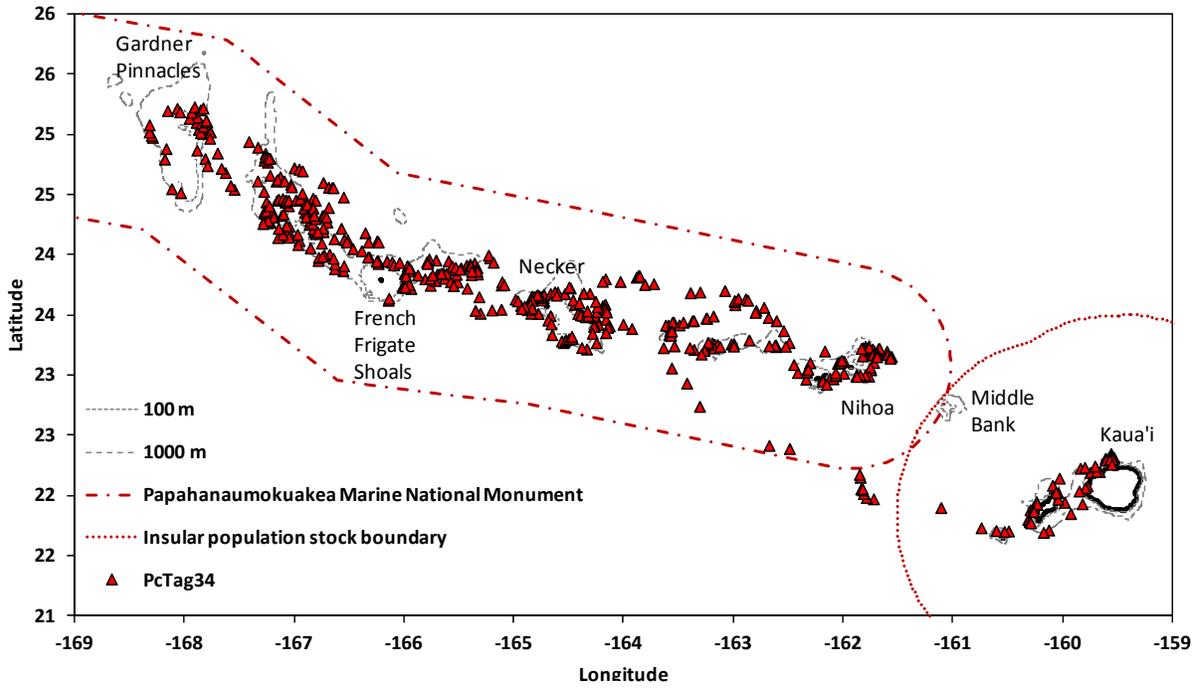


Figure 1. All filtered locations from PcTag34, tagged off Kaua'i June 13, 2012.

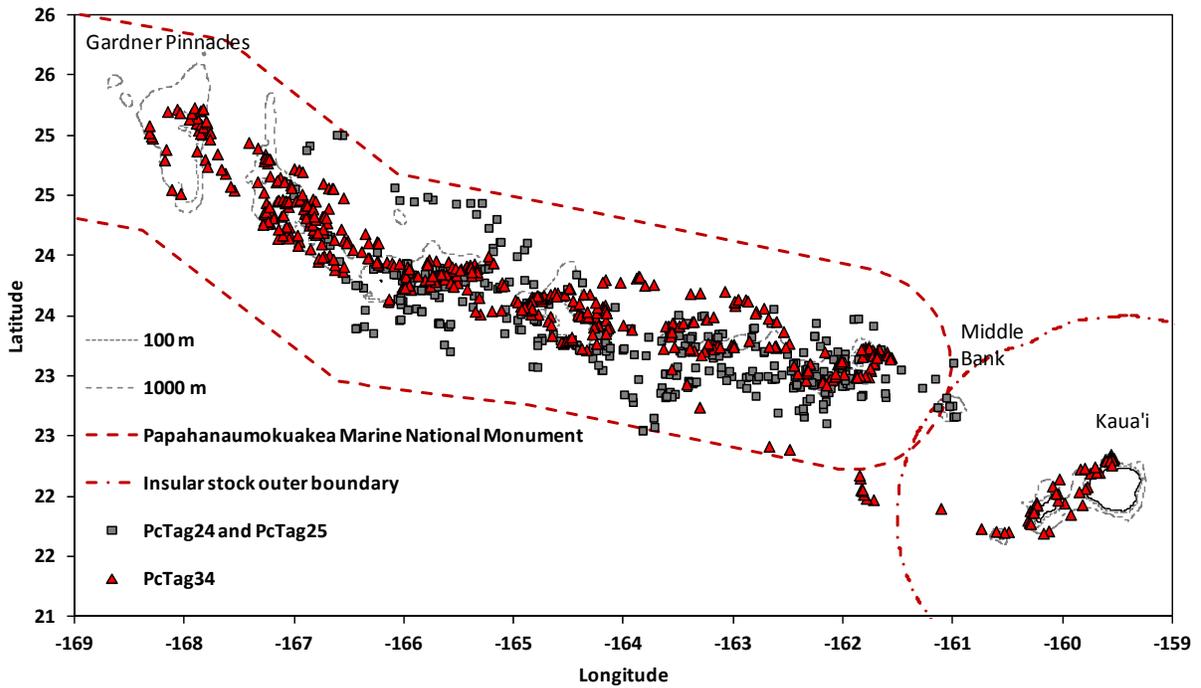


Figure 2. Locations of PcTag34 and two individuals tagged in 2010 (PcTag24 and PcTag25).

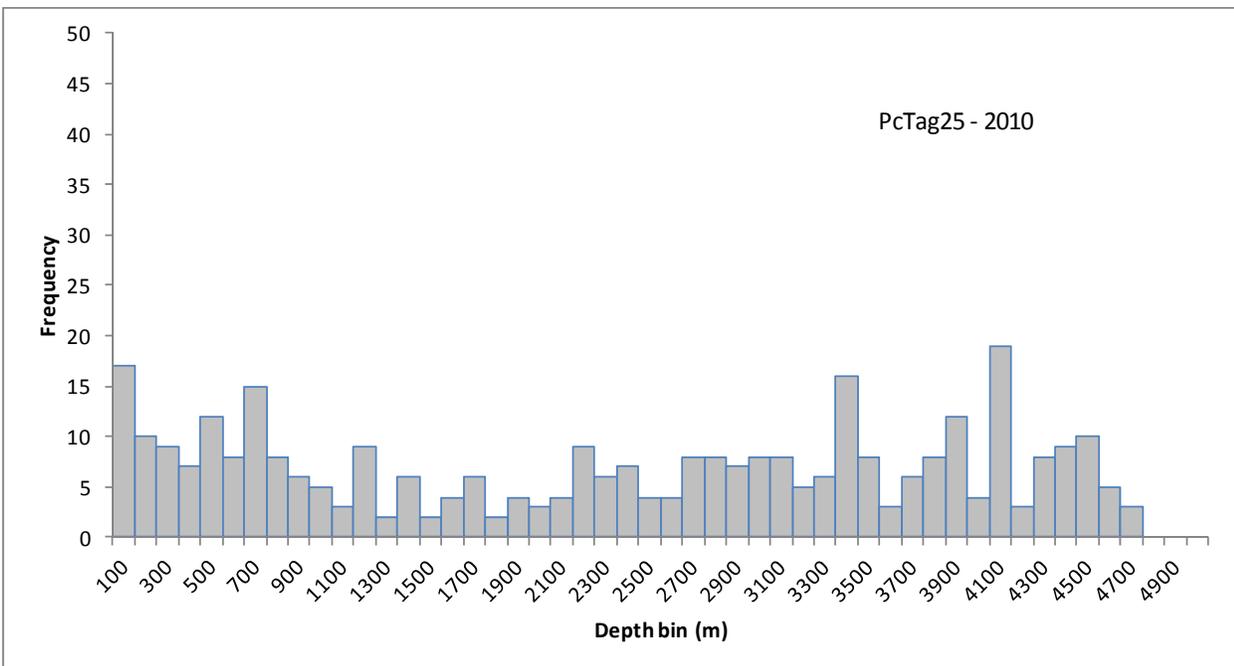
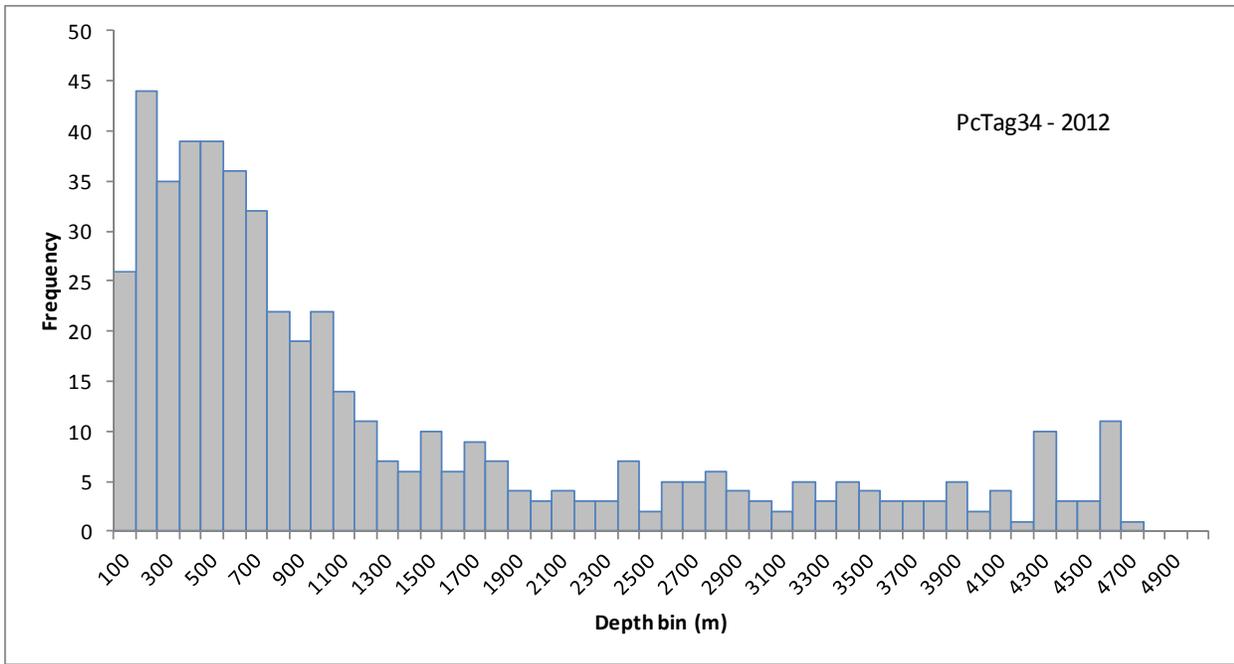


Figure 3. Histograms of depth from PcTag34 (tagged in June 2012) and PcTag25 (tagged in 2010 during HICEAS).

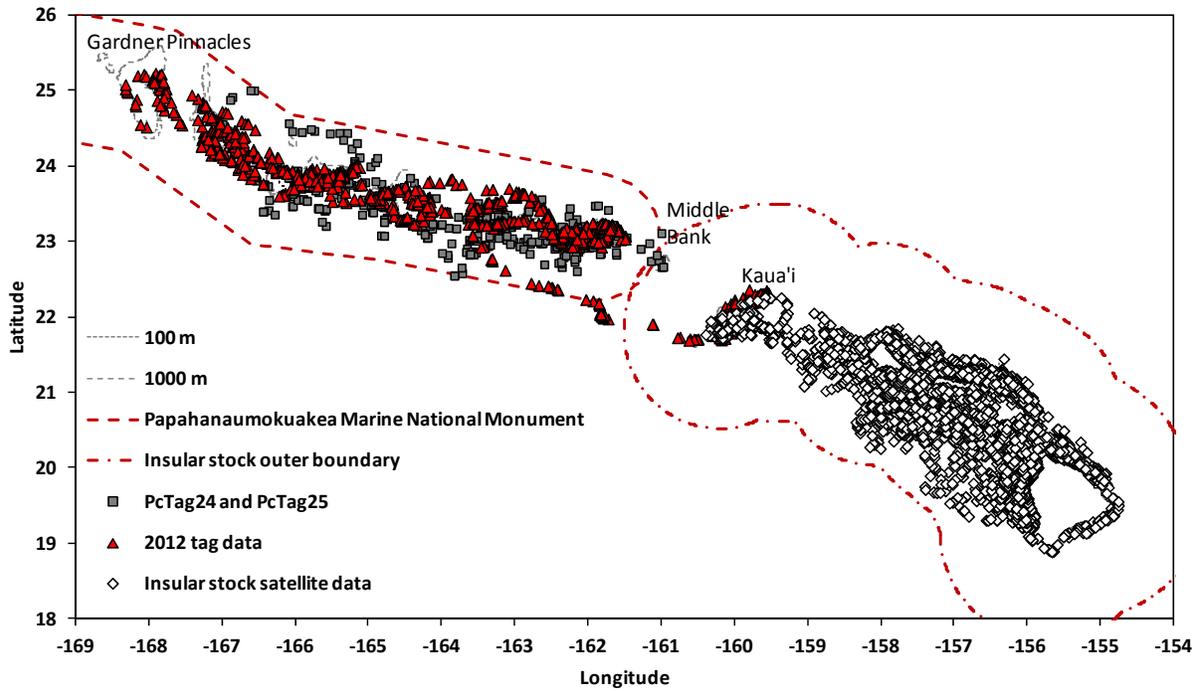


Figure 4. Satellite-tag derived locations from the MHI insular population, the individuals tagged in 2010, and the individuals tagged in June 2012.

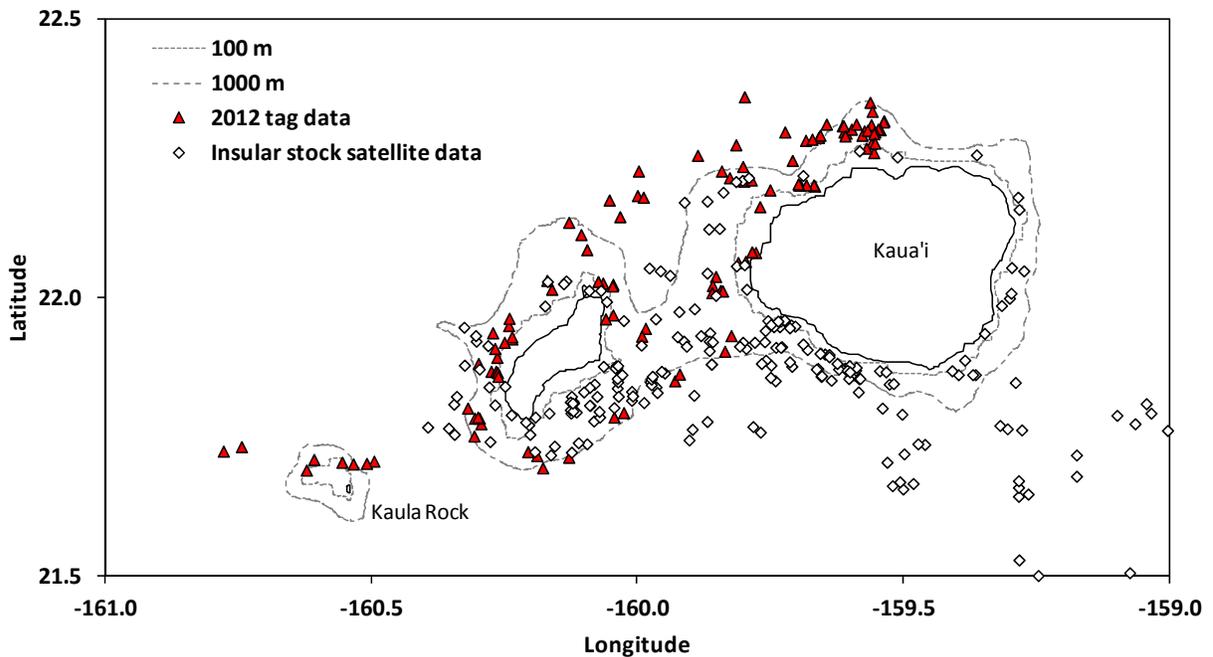


Figure 5. Overlap of satellite-tag derived locations from individuals from the MHI insular population and the individuals tagged in June 2012.

Table 1. Comparison of depth, distance to land, and distance to the 200 m isobath of two individuals tagged during HICEAS 2010 (from Baird et al. 2011) and one individual tagged in June 2012.

Tag ID	Number of locations	Water Depth (m)			Distance to land (km)			Distance to 200 m isobath (km)		
		Min	Median	Max	Min	Median	Max	Min	Median	Max
PcTag24	34	22	1,532	4,082	7.1	38.6	104.1	0.1	4.1	34.7
PcTag25	337	9	2,506	5,127	2	55	147.5	0.02	17.1	89.9
PcTag34	501	17	697	4,631	1	52.7	245.6	0.1	5.2	106.1

Table 2. Depth and distance to land of 11 false killer whales from the main Hawaiian Insular population (from Baird et al. 2010).

Tag ID	Number of locations	Water depth (m)			Distance to land (km)		
		Min	Median	Max	Min	Median	Max
PcTag1	57	10	220	1,742	0.1	6.4	35
PcTag2	13	6	163	564	0.1	5.4	10
PcTag3	131	46	597	4,833	1.6	14.1	96
PcTag5	254	46	827	4,767	0.9	122	83
PcTag6	66	11	697	1,673	0.0	20.5	34
PcTag7	697	12	754	4,652	0.1	11.9	38
PcTag8	202	6	392	2,105	0.0	14	27
PcTag9	433	0	614	2,619	0.0	6.3	32
PcTag10	504	8	416	3,401	0.0	9.8	39
PcTag11	302	46	595	1,940	1.2	7.7	29
PcTag12	405	94	1,052	4,847	2.7	10.1	87